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The Influence of One Recall Upon a Subsequent
Recall of Incompletely Learned Material: A Pilot Investigation*

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A good deal of interest exists concerning the amount and accuracy of recall of material previously learned. The question has been investigated from many different aspects, from the early days of the psychology of testimony to the present time. Under such control of the conditions of learning and retention as may be established in the laboratory, the accuracy and amount of material recalled may reach high levels. But here, and to an even greater extent in other circumstances, recall tends to be less than perfect. This finding is particularly evident in the study of "incidental" learning, recall for events in one's past life, legal testimony and related areas.

In the past several years, it has become clear that recall and the absence of recall at a particular time may have effects on subsequent recalls. A recall may be considered an additional practice trial, perhaps fixating both the correct and the incorrect responses freely recalled. On the other hand, as Warner Brown (2) has shown, a second recall may yield correct responses which were not present on the first recall.

With time delays introduced following learning (absence of recall at a fixed interval) recall scores sometimes are greater than they are for recalls made just following learning. This is the phenomenon of reminiscence. Considerable theoretical significance has been attached to this phenomenon, but it need not concern us here as the conditions for its occurrence appear to be associated with the original learning.

Although it is agreed that a recall will have effect on subsequent recalls, the varieties of this influence and the conditions under which they occur have not been fully explored. Is it possible, for example, to increase the amount and accuracy of recall by spacing trials, by increasing their number or by demanding greater effort (increasing motivation) in the attempts to recall? Considerable practical and theoretical interest is associated with answers to questions of this sort. Should the testimony of a witness be considered more or less accurate when, after thinking things over, he changes or adds to his previously given testimony? Is the high degree of recall for events of childhood reported for patients under psychoanalytic treatment due to the "recovery of the repressed" or due instead, at least in part, to the high motivation and the intensive concentration of thought upon events of this period?

Theoretically, the problem has several interesting aspects, among which two may be mentioned here. One is the extent to which the activation of thoughts concerning a past experience may somehow reactivate and "strengthen" the "memories" of it so that they may be reported verbally. Positive findings would require the development of a theory concerning the responsible mechanisms. Another theoretical interest concerns the methods used to re-evolve old memories and the factors which have to be overcome to make them available.

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There is at least one earlier study which reported evidence concerning this problem. Myers and Myers (3) asked their subject to recall selections that they had learned as children (speeches, poetry, etc.). The initial recalls were poor, but with repeated attempts at recall the recalls improved. This study did not control the original learning of the material but its findings are quite suggestive. More work is needed, however, and the present study was designed as an exploratory investigation of this general area.

METHOD

As a preliminary method for studying the problem, the following procedures were followed. A passage, entitled "Rumor Deliberately Planted" (1, pp. 62-63) was read twice in one class period to 20 male and female college students. The subjects were asked to attend alertly to the readings but were asked not to think about or rehearse the story. E did imply that something would be done with the story later on. Following the two readings, there was no further reference to the material until a class period exactly two weeks later. At the beginning of this second class period, seven minutes were allotted for a recall trial in which the subjects were asked to list items from the story. The items were listed in columns on the subject's papers, and the papers were marked at one minute intervals on signal of E. The subjects were asked further to place an asterisk on the papers every time they referred back to what they had already written or when they had to think to get new ideas. Following this seven minute period, the papers were collected. At the end of the 50 minute class period seven minutes were allowed for a second recall. The first recalls were retained by E, and the instructions for the second recall were the same as for the first one, save that the subjects were urged to write ideas they had not previously recalled. No consultation with the original recalls was permitted.

The papers were scored for the number of correct and incorrect "idea units" they contained. The original passage was demarked into 81 such units, and a unit was scored as correct if the substance of it was recalled. Verbatim repetition was thus not required.

RESULTS and INTERPRETATION

The principal results may be seen in Table 1 which presents the total number of correct and incorrect responses and the number of asterisks for each minute of the two recall periods.

The first recall trial (7 minutes) clearly produces the majority of the correct responses. However, the rate of production of these responses decreases markedly from the first to the seven minute. Observation of the behavior of the subjects as well as the curve for correct responses suggests that few, if any, additional correct responses, would have been produced had the original recall period been extended. That the subjects had reached a "plateau" is further suggested in that the number of incorrect responses and the number of asterisks declined markedly in the seventh minute, following a maximum somewhat earlier. Following the delay, however, all subjects but one gave at least one new correct response, and the total of 34 new correct responses given in the first four minutes of the second recall is almost 60 per cent of the number given during the last four minutes of the first recall period. The number of incorrect

responses for the same sets of four minutes for the two recalls is essentially the same, but the number of asterisks in these minutes for the second recall is about one-third the number given in minutes 4-7 of the first recall. This and the number of wrong responses suggest that correct ideas were coming somewhat more easily in the first four minutes of the second recall than in the last four minutes of the first recall. Only 5 subjects gave any correct responses in the last minute of the first whereas 13 gave correct responses in the first minute of the second recall.

This study is obviously rather crude and methodologically naive. A number of desirable controls were not included, and it is uncertain how much rehearsal was done between the termination of the first recall and the beginning of the second recall. Despite these limitations, the conclusion seems fairly clear that the spacing of the two recalls was associated with the production of responses that would probably not have appeared had the original recall period been extended. This conclusion is dependent upon the shape of the curves for the first recall (which seemed to be approaching zero), but it is further supported by the behavior of the subjects during the last two or three minutes of the first recall. Most of them had stopped writing and had relaxed, as though they considered that their task was finished.

TABLE 1

Total Number of Correct and Incorrect Responses
and of Asterisks for the 20 Subjects

Minutes	1	2	3	4	5	6	7
First Recall							
Correct	111	66	45	29	22	20	11
Incorrect	11	14	20	15	8	10	3
Asterisks	2	4	10	9	11	10	3
Second Recall							
Correct	19	12	10	13	3	0	0
Incorrect	13	6	3	13	0	2	0
Asterisks	2	4	6	1	1	1	0

This study was undertaken solely as a pilot investigation to determine whether its results would be suggestive that further and better controlled work of this type should be undertaken. The results suggest that spacing of recall trials may be a condition which will foster accuracy and amount of recall and indicate that further research should be carried out to explore this and other conditions.

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